

WHAT IS CLAIMED IS:

1. A method for packet flooding in a network including a plurality of nodes, comprising:
 - generating a flood packet;
 - selecting one or more of the nodes as a like number of one or more relays;
 - attaching a header to the flood packet, the header instructing the one or more relays to which of the nodes to send the flood packet; and
 - sending the flood packet with the attached header to the one or more relays.
2. The method of claim 1, wherein the selecting one or more of the nodes as a like number of one or more relays includes:
 - building a minimum spanning tree that covers an n-hop neighborhood of one of the nodes that generated the flood packet, and
 - using the minimum spanning tree to identify the one or more relays.
3. The method of claim 1, wherein the one or more relays form a first relay configuration; and
 - wherein the method further comprises:
 - identifying a difference between the first relay configuration and a second relay configuration;

comparing the difference between the first relay configuration and the second relay configuration to a threshold; and

updating the second relay configuration with the first relay configuration when the difference is above the threshold.

4. The method of claim 3, wherein the attaching a header to the flood packet includes forming the header based at least in part on the first relay configuration.

5. The method of claim 1, further comprising:
setting a transmission power for the flood packet based on a location of the one or more relays.

6. The method of claim 5, wherein the setting a transmission power includes determining the transmission power based at least in part on a distance to a farthest one of the one or more relays.

7. The method of claim 1, further comprising:
receiving the flood packet at one of the one or more relays as a receiving relay;
extracting the attached header; and
retransmitting the flood packet from the receiving relay to one or more other ones of the nodes.

8. The method of claim 7, wherein the retransmitting the flood packet includes duplicating the flood packet.

9. The method of claim 7, wherein the retransmitting the flood packet includes: identifying one or more other nodes as one or more additional relays, and sending the flood packet to the one or more additional relays.

10. The method of claim 1, wherein the sending the flood packet includes: transmitting the flood packet as a unicast transmission.

11. The method of claim 1, wherein the sending the flood packet includes: transmitting the flood packet as a broadcast transmission.

12. A system for flooding packets in a network that includes a plurality of nodes, comprising:

means for receiving a flood packet;

means for identifying one or more of the nodes as a like number of one or more relays;

means for sending the flood packet to the one or more relays; and

means for retransmitting the flood packets from the one or more relays such that each of the nodes in the network receives one copy of the flood packet.

13. A system for flooding packets in a network that includes a plurality of nodes, comprising:

a flooding module configured to:

receive a flood packet,

select one or more of the nodes as a like number of one or more relays,

attach a header to the flood packet, the header instructing the one or more relays to which of the nodes to send the flood packet; and

a forwarding module configured to:

send the flood packet with the attached header to the one or more relays.

14. The system of claim 13, further comprising at least one of a directional antenna and an omni-directional antenna.

15. The system of claim 13, wherein the flooding module is configured to:
build a minimum spanning tree that covers an n-hop neighborhood of one of the nodes that generated the flood packet, and
identify the one or more relays based at least in part on the minimum spanning tree.

16. The system of claim 13, wherein the one or more relays form a first relay configuration; and
wherein the flooding module is further configured to:

identify a difference between the first relay configuration and a second relay configuration,

compare the difference between the first relay configuration and the second relay configuration to a threshold, and

update the second relay configuration with the first relay configuration when the difference is above the threshold.

17. The system of claim 16, wherein the header is formed based at least in part on the first relay configuration.

18. The system of claim 13, wherein the flooding module is further configured to set a transmission power for the flood packet based on a location of the one or more relays.

19. The system of claim 18, wherein when setting a transmission power, the flooding module is configured to determine the transmission power based at least in part on a distance to a farthest one of the one or more relays.

20. The system of claim 13, wherein the forwarding module is configured to transmit the flood packet as a unicast transmission.

21. The system of claim 13, wherein the forwarding module is configured to transmit the flood packet as a broadcast transmission.

22. A method for flooding packets in a network that includes a plurality of nodes, comprising:

- receiving a flood packet;
- selecting one or more of the nodes as a like number of one or more relays;
- sending the flood packet to the one or more relays; and
- forwarding the flood packet by the one or more relays such that each of the nodes in the network receive the flood packet once.

23. A method for flooding packets in a network that includes a plurality of nodes, comprising:

- receiving, at a first one of the nodes, a flood packet;
- determining whether the flood packet includes an attached header, the header identifying one or more second nodes to which the first node is to transmit the flood packet;
- extracting the header when the flood packet includes the header; and
- retransmitting the flood packet to the one or more second nodes based at least in part on the extracted header.